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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,682	10/29/2003	Toan Nguyen	CIS03-46(7414)	5032

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EXAMINER	
HOFFBERG, ROBERT JOSEPH	
ART UNIT	**PAPER NUMBER**
2835	

DATE MAILED: 04/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/695,682	NGUYEN ET AL.	
	Examiner	Art Unit	
	Robert J. Hoffberg	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *19 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19 and 21-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *19.27 and 28* is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☒ Claim(s) *21-26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: e-mail attachment

DETAILED ACTION

Response to Arguments

1. The prior examiner, Mr. Biju Chandran and the first named inventor of one of the prior art used in the application (2003/0063440 A1) are one and the same. Mr. Chandran was employed by the Intel, the assignee, prior to his employment with the U. S. Patent and Trademark Office. Applicant points out that 37 CFR 10.111 is for accepting private employment in a manner in which he has had personal responsibility as a public employee. In this case, Mr. Chandran had the private employment prior to, not after his responsibility as a public employee. Mr. Chandran has resigned from the U. S. Patent and Trademark Office and a new examiner has been assigned to this application. The applicant also cites 37 CFR 1.56(a) and MPEP 2001.03 which is duty of the applicant (inventor, his attorney or agent or his assignee) and not on the office. However, contrary to what the applicants suggest (second half, page 11 and beginning of page 12), using a prior art in which the examiner is an inventor does not violate any ethics laws or regulations since the examiner neither has a financial interest in the invention, nor the assignee of the said invention (Intel Corp.) is a party to this matter. Furthermore, a Federal employee may not participate in any matter that could affect his financial interest. 18 U.S.C. § 208. In addition, an employee is barred for one year (two years if he received an extraordinary severance payment) from working on any matters in which his former employer is a party. 5 C.F.R. § 2635.502(b)(1)(iv) (See attached email from Will Jacobi, Office of General Counsel regarding this issue)

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-13 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chandran et al. (PGPub US 2003/0063440 A1) in view of Hellbruck et al. (PGPub US 2001/0030037 A1).

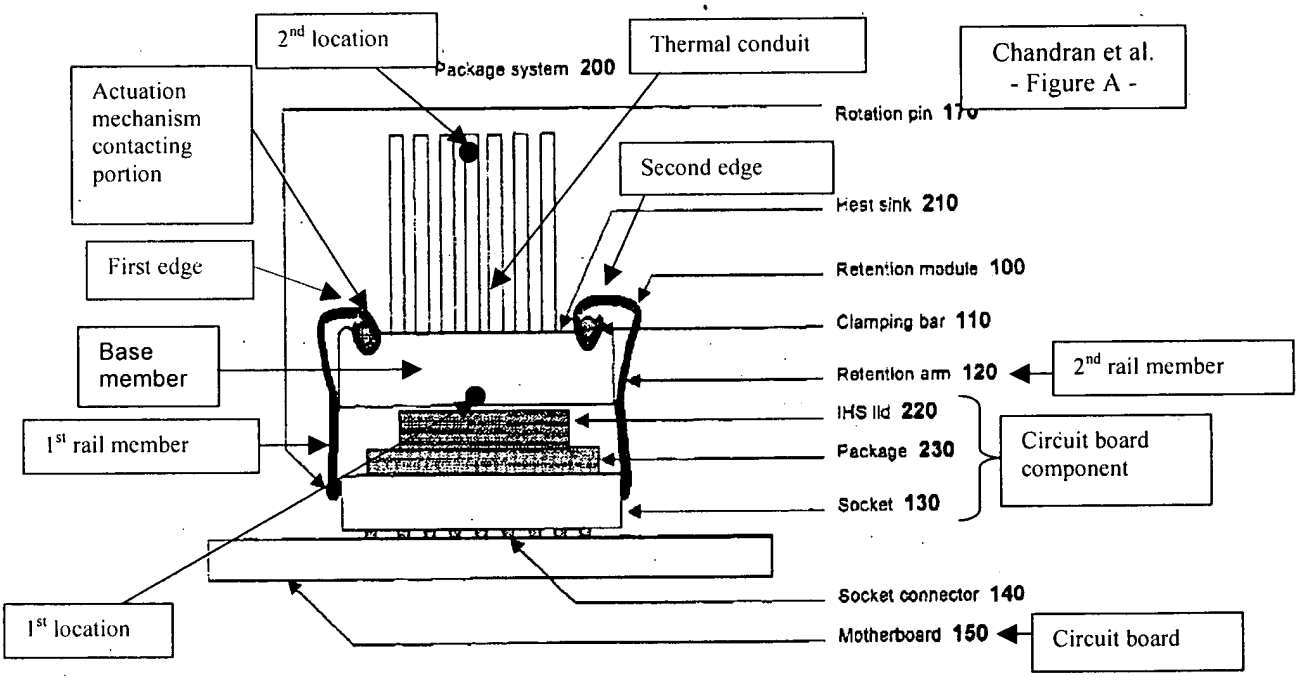
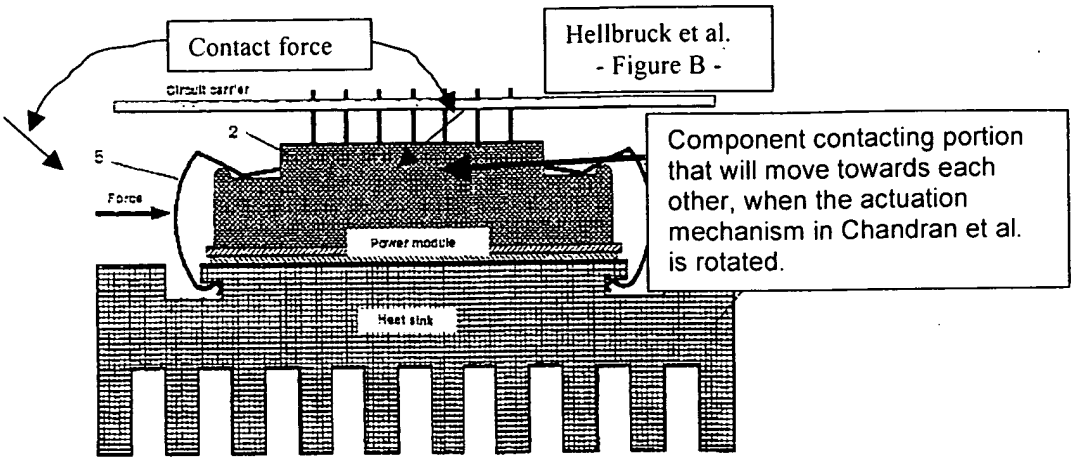


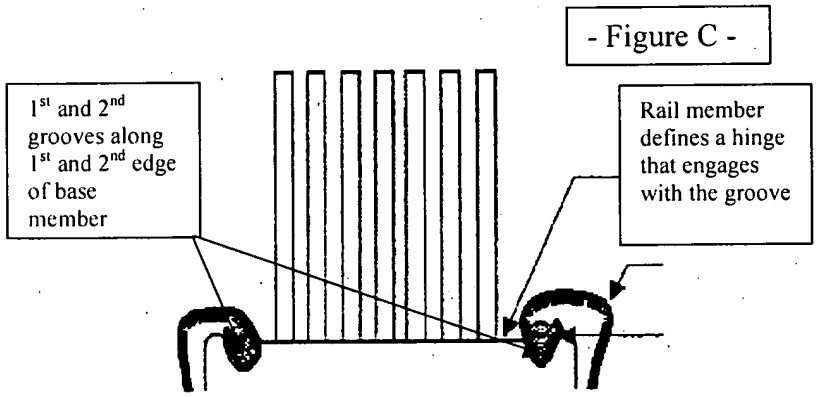
FIG. 2



- Regarding claim 1, Chandran et al. disclose a circuit board module (200), comprising: a circuit board (150); a circuit board component (220+230+130) mounted to the circuit board; and a heat sink assembly (210) including: a base member which has a first edge and a second edge (marked in figure), the base member being configured to operate as a thermal conduit between a first location proximate to the circuit board component and a second location distal to the circuit board component; a first rail member (marked) coupled to the base member along the first edge of the base member and a second rail member (120) coupled to the base member along the second edge of the base member; and an actuation mechanism (110) coupled to the base member configured to move the first and second rail members. While not clearly stated, the spring biased force (last 3 lines, paragraph 0020) of rail members 120 would appear to require the members to move towards each other in order to securely retain the base to the circuit

component. Hellbruck et al. is relied upon to show a clear teaching of an assembly where the first and second rail members (5) move towards each other when the base member resides at the first location to fasten the base member to the circuit board component. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the rail members that move towards each other as taught by Hellbruck et al. in the heat sink assembly as disclosed by Chandran et al. if in fact the rails of Chandran et al. do not already move in this manner. The motivation to do so would be to make the heat sink assembly adapt to a range of sizes of components to be mounted therein.

- Figure C -



- With respect to claim 2, Chandran et al. further discloses that the base member defines a first groove along the first edge and a second groove along the second edge, wherein the first rail member defines a first hinge which engages with first groove defined by the base member along the first edge, and wherein the

second rail member defines a second hinge which engages with the second groove defined by the base member along the second edge.

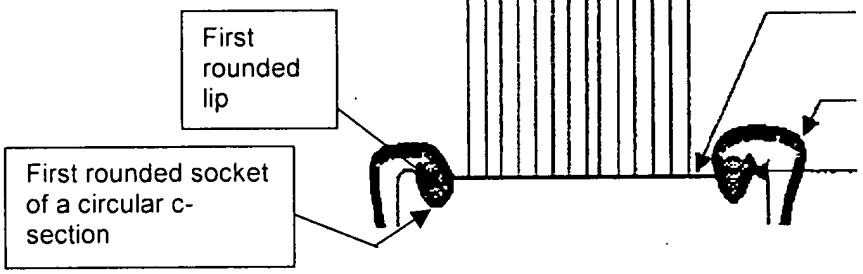
- With respect to claim 3, Chandran et al. as modified by Hellbruck et al. satisfy all the limitations of claim 1, and further disclose that the first rail member defines a first substantially elongated surface which is configured to assert a first distributed contact force onto the circuit board component in response to movement of the actuation mechanism; and wherein the second rail member defines a second substantially elongated surface which is configured to assert a second distributed contact force (marked in attached Figure B) onto the circuit board component in response to movement of the actuation mechanism (see figures 6a, 6b and 7a in Hellbruck et al., and figure 1, Chandran et al.).
- With respect to claim 4, Chandran et al. as modified by Hellbruck et al. further discloses that the first and the second rail members includes an actuation mechanism contacting portion and a component contacting portion (marked in attached Figures A and B) which are integrally joined together to provide that rail member with an L-shaped cross-section.
- With respect to claim 5, Chandran et al. disclose a heat sink assembly (200), comprising: a base member which has a first edge

and a second edge (marked in attached Figure A), the base member being configured to operate as a thermal conduit between a first location proximate to a circuit board component and a second location distal to the circuit board component; a first rail member coupled to the base member along the first edge of the base member and a second rail member coupled to the base member along the second edge of the base member (marked in attached Figure A); and an actuation mechanism (110) coupled to the base member. Chandran et al. do not clearly state that the first and second rail members towards each other. However, the spring biased force (last 3 lines, paragraph 0020) of rail members 120 would appear to require the members to move towards each other in order to securely retain the base to the circuit component. Hellbruck et al. is relied upon to show a clear teaching of an assembly where the first and second rail members (5) move towards each other when the base member resides at the first location to fasten the base member to the circuit board component. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the rail members that move towards each other as taught by Hellbruck et al. in the heat sink assembly as disclosed by Chandran et al. if in fact the rails of Chandran et al. do not already move in this manner. The

motivation to do so would be to make the heat sink assembly adapt to a range of sizes of components to be mounted therein.

- With respect to claim 6, Chandran et al. further disclose that the base member defines a first groove along the first edge and a second groove along the second edge (attached Figure A), wherein the first rail member defines a first hinge which engages with first groove defined by the base member along the first edge, and wherein the second rail member defines a second hinge which engages with the second groove defined by the base member along the second edge (attached Figure C).

- Figure D -



- With respect to claim 7, Chandran et al. further disclose that the base member defines, as the first groove, a first rounded socket along the first edge; wherein the base member defines, as the second groove, a second rounded socket along the second edge; wherein the first rail member defines, as the first hinge, a first

rounded lip; and wherein the second rail member defines, as the second hinge, a second rounded lip (attached Figure D).

- With respect to claim 8, Chandran et al. further disclose that each of the first and second rounded sockets defined by the base member has a circular cross-section, and wherein each of the first and second rounded lips respectively designed by the first and second rail members has a circular cross-section that substantially minors that of the first and second rounded sockets defined by the base member (see attached Figure D) to enable each of the first and second rail members to smoothly pivot relative to the base member in a hinge-like manner in response to movement by the actuation mechanism.
- With respect to claim 9, Chandran et al. as modified by Hellbruck et al. satisfy all the limitations of claim 5, and further disclose that the first rail member defines a first substantially elongated surface which is configured to assert a first distributed contact force (marked in attached Figure B) onto the circuit board component in response to movement of the actuation mechanism; and wherein the second rail member defines a second substantially elongated surface which is configured to assert a second distributed contact force onto the circuit board component in response to movement of

the actuation mechanism (see figures 6a, 6b and 7a in Hellbruck et al., and figure 1, Chandran et al.).

- With respect to claim 10, Chandran et al. modified by Hellbruck et al. as applied above further disclose that the circuit board component extends along an X-Y plane when residing at the first location (figure 2, Chandran et al.), and wherein the first and second rail members are configured to simultaneously assert the first and second distributed contact forces substantially toward each other within the X-Y plane in response to movement of the actuation mechanism (marked in attached Figure B).
- With respect to claim 11, Hellbruck et al. further discloses that the first and second rail members are configured to assert the first and second distributed contact forces onto a common side of the circuit board component and at least partially toward the base member in response to movement of the actuation mechanism (marked in attached Figure B).
- With respect to claim 12, Chandran et al. further discloses that each of the first and second rail members includes an actuation mechanism contacting portion (attached Figure A) and a component contacting portion (attached Figure B) which are integrally joined together to provide that rail member with an L-shaped cross-section.

- With respect to claim 13, Chandran et al. as modified by Hellbruck et al. satisfies all the limitations of claim 12, and further disclose that the actuation mechanism includes displacement members (110) which, when coupled to the base member, are configured to pivotally displace the actuation mechanism contacting portions of the first and second rail members to pivot the contacting portions of the first and second rail members toward each other (Figure B).
- With respect to claim 15, Chandran et al. discloses a heat sink assembly, comprising: a base member which has a first edge and a second edge, the base member being configured to operate as a thermal conduit between a first location proximate to a circuit board component and a second location distal to the circuit board component; a first rail member coupled to the base member along the first edge of the base member and a second rail member coupled to the base member along the second edge of the base member; and means for moving portions of the first and second rail members when the base member resides at the first location to fasten the base member to the circuit board component. Chandran et al. do not disclose that the end of the first and second rail members towards each other. Hellbruck et al. disclose an assembly where the end of the first and second rail members moves towards each other when the base member resides at the

first location to fasten the base member to the circuit board component. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the portion of the rail members that move towards each other as taught by Hellbruck et al. in the heat sink assembly as disclosed by Chandran et al., to make the heat sink assembly adapt to different kinds of circuit board components.

- With respect to claim 16, Chandran et al. further discloses that the base member defines a first groove along the first edge and a second groove along the second edge, wherein the first rail member defines a first hinge which engages with first groove defined by the base member along the first edge, and wherein the second rail member defines a second hinge which engages with the second groove defined by the base member along the second edge (see attached Figure C).
- With respect to claim 17, Chandran et al. as modified by Hellbruck et al. further discloses that the first rail member defines a first substantially elongated surface which is configured to assert a first distributed contact force onto the circuit board component in response to actuation of the means for moving; and wherein the second rail member defines a second substantially elongated surface which is configured to assert a second distributed contact

force (marked in attached Figure B) onto the circuit board component in response to actuation of the means for moving (see figures 6a, 6b and 7a in Hellbruck et al., and figure 1, Chandran et al.).

- With respect to claim 18, Chandran et al. further discloses that each of the first and second rail members includes an actuation mechanism contacting portion (attached Figure A) and a component contacting portion (attached Figure B) which are integrally joined together to provide that rail member with an L-shaped cross-section.

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chandran et al. in view of Hellbruck et al. as applied to claims 13 and 19 above, and further in view of Herring et al (PGPub US 2003/0048610 A1).

Chandran et al. as modified by Hellbruck et al. satisfies all the limitations of claim 13 but does not disclose that the displacement members include a threaded portion, which threads into a respective threaded aperture defined by the base member. Herring et al. disclose a heat sink assembly where the displacement members includes (i) a threaded portion which threads into a respective threaded aperture defined by the base member and (ii) a head portion, coupled to the threaded portion, which is configured to engage an end of a torque wrench to provide that displacement member with rotational movement and linear displacement in response to rotation of the torque

wrench (Herring et al., Figure 2). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to incorporate the above mentioned teaching of Herring et al., on the displacement members of the heat sink assembly as disclosed by Chandran et al. to ensure that the rail members do not snap off of the circuit board component during vibratory loads that are seen during use.

Allowable Subject Matter

5. Claims 19, 27 and 28 are allowed.

6. Claims 21-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: Prior art does not disclose the structure defined in the dependent claims 21, 23, or 25 where the actuation mechanism included exactly four screw each disposed on a corner of the base member, configured to translate linear movement along the screw axis into angular displacement of the rail member. Prior art also does not disclose a method of attaching a heat sink assembly as described in claim 19 where moving the ends of the rail members is accomplished by rotating threaded displacement members, the linear displacement of which pivots the rail members on the base in a hinge like manner.

Response to Arguments

8. Applicant's arguments filed on 1/19/06 have been fully considered but they are not persuasive. Described below are the reasons why.

Applicants also point out that the clamping member of Chandran et al. '110' cannot be equated to the actuation mechanism since it "cannot actuate rail members toward each other as required in claim 1." (end of 2nd paragraph, page 14). However, the examiner wished to point out that claim 1 only requires the actuation mechanism to be "coupled to the base member and configured to move portions of the first and second rail members towards each other." The actuation member in Chandran et al. '110' is a circular bar, which is coupled to a groove in the base member (as shown in figure 2 of Chandran et al., which is pasted and marked "Figure A" in this office action). This structure of the actuation member and the coupling technique makes it "configured" to move the rail members towards each other. For example, when the actuation members in Chandran et al. are pushed towards each other, these actuation member move in the groove (the rail members being spring elements allow it to) to move the rail members towards each other.

The applicant also points out that Hellbruck is used only for its teaching of the rail members moving towards each other if the invention of Chandran et al. does not clearly indicate this (as mentioned in the rejection to claim 1), and not as an independent means of rejection of claim 1.

The applicant's arguments against the rejection of independent claim 5 and its dependent claims have the same basis as the arguments against the rejection of claim 1 (page 16, 2nd paragraph.) Therefore, the explanation given above is applicable here.

Applicant also argues that the retention screw '106' in Herring is not configured to move rail member towards each other, and the office action mischaracterizes the teaching of Herring (4th paragraph, page 16 and 1st paragraph page 17.) However, Herring is used for the its teaching of "displacement members [that] includes (i) a threaded portion which threads into a respective threaded aperture defined by the base member and (ii) a head portion, coupled to the threaded portion, which is configured to engage an end of a torque wrench to provide that displacement member with rotational movement and linear displacement in response to rotation of the torque wrench (Herring et al., Figure 2)." When these displacement members are incorporated into the heat sink assembly as disclosed by Chandran et al. (which has rail members that move towards each other), the limitations of claim 14 are met.

The applicant's objection to claim 15 and its dependent claims (2nd paragraph, page 17) has the same basis as the arguments against the rejection of claim 1. Therefore, the explanation above holds.

CONCLUSION

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert J. Hoffberg whose telephone number is (571) 272-2761. The examiner can normally be reached on 8AM - 5PM. Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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